

Appl. No. 10/018,098  
Amdt. Dated July 14, 2004  
Reply to office Action of April 23, 2004

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-10 (canceled)

Claim 11 (canceled)

Claim 12 (currently amended): Semiconductor sensor according to claim ~~11~~ 21, ~~characterized by wherein~~ the pixel surface coatings ~~(11)~~ and the second conductive layer ~~(21)~~ ~~consisting of~~ comprise metal or any other conductive, light impervious material.

Claim 13 (currently amended): Semiconductor sensor according to claim 12, ~~characterized by wherein~~ the pixel surface coatings ~~(11)~~ and the second conductive layer ~~(21)~~ ~~consisting of~~ comprise aluminum.

Claim 14 (currently amended): Semiconductor sensor according to claim ~~11~~ 21, ~~characterized by wherein~~ the second conductive layer ~~(21)~~ ~~being designed as~~ comprises a capacitor electrode.

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Claim 15 (currently amended): Semiconductor sensor according to claim ~~11~~ 21, ~~characterized by~~ wherein a potential ~~being~~ is applied to the second conductive layer ~~(21)~~.

Claim 16 (currently amended): Semiconductor sensor according to claim ~~11~~ 21, ~~characterized by the~~ wherein a detection surface of the sensor ~~being provided with~~ comprises an electron-intensifying coating ~~(5)~~ and transmit channels ~~(54)~~ to the pixel surfaces being intended.

Claim 17 (currently amended): Semiconductor according to claim 16, ~~characterized by~~ wherein the electron-intensifying coating ~~(5) being provided with~~ comprises a conductive thin layer ~~(52, 53) each to the~~ disposed on an upper and lower side, to which a electric potential is applied.

Claim 18 (currently amended): Semiconductor sensor according to claim ~~11~~ 21, ~~characterized by~~ wherein neighboring pixel surfaces ~~(11) having~~ have a different potential.

Claim 19 (currently amended): Use of a semiconductor sensor according to claim ~~11~~ 21, assembled in a vacuum system with photo

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cathode which converts photons into electrons in an image-oriented way.

Claim 20 (currently amended): Use according to claim 19, wherein the vacuum system is being equipped with one or more multi-channel-plates for the intensification of ~~the~~ an electron flow.

Claim 21 (new): A semiconductor sensor for direct detection of electrons with a pixel structure in which a capacitance is designed to each pixel that stores a charge and converts the charge into a readable voltage, the sensor comprising:

a conductive layer substantially covering the pixel structure and comprising a plurality of pixel surface coatings, wherein each pixel surface coating covers an individual pixel and each pixel surface coating is separated from each adjoining pixel surface coating by a gap;

a second conductive layer covering a surface of the gap separating the pixel surface coatings; and

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an insulation between the pixel surface coatings and the second conductive layer.